

Claims

What is claimed is:

1. A configuration system for use in a process plant having a plurality of physical and logical process entities which operate together to perform a process and a process controller communicatively connected to the plurality of physical and logical process entities to implement a control routine to control the operation of the process plant, the configuration system comprising:

an executable graphic display that includes one or more visual depictions to be displayed on a display device when the graphic display is executed, a parameter memory adapted to store a value of a parameter and a binding memory adapted to store a reference for communicatively connecting the parameter memory to a data source within the process plant;

a configuration database that stores an indication of the physical and logical process entities and an indication of the executable graphic display; and

a configuration engine that enables a user to configure the operation of the graphic display by associating the graphic display within the configuration database with one of the indications of the physical and logical process entities within the configuration database.

2. The configuration system of claim 1, wherein the configuration engine determines a reference to be stored in the binding memory based on the identity of the one of the physical and logical process entities to which the graphic display is associated.

3. The configuration system of claim 1, wherein the configuration database stores the indication of the executable graphic display in a library section indicating that the executable graphic display is not bound to the data source within the process plant and wherein the configuration database stores the indications of the physical and logical process entities in a manner that indicates the manner in which these physical and logical process entities are configured in the process plant.

4. The configuration system of claim 1, wherein the indications of the physical and logical process entities include an indication of a control routine and the configuration engine enables the executable graphic display to be associated with the control routine.

5. The configuration system of claim 1, wherein the indications of the physical and logical process entities include an indication of a plant area and the configuration engine enables the executable graphic display to be associated with the plant area.

6. The configuration system of claim 1, wherein the indications of the physical and logical process entities include an indication of an equipment entity and the configuration engine enables the executable graphic display to be associated with the equipment entity.

7. The configuration system of claim 1, wherein the indications of the physical and logical process entities include an indication of a display device and the configuration engine enables the executable graphic display to be associated with the display device.

8. The configuration system of claim 7, wherein the display device includes a functional subsystem and wherein the configuration engine enables the executable graphic display to be associated with the functional subsystem of the display device.
9. The configuration system of claim 8, wherein the executable graphic display includes an indication of a role associated with the executable graphic display and wherein the configuration engine associates the executable graphic display with the functional subsystem of the display device according to the role associated with the graphic display.
10. The configuration system of claim 8, wherein the functional subsystem of the display device is an operator subsystem or a maintenance subsystem or a simulation subsystem.
11. The configuration system of claim 1, wherein the indications of the physical and logical process entities include an indication of a first logical entity and the configuration engine assigns the executable graphic display to a display device associated with the first logical entity when the configuration engine associates the executable graphic display with the first logical entity.
12. The configuration system of claim 11, wherein the first logical entity is a control area or a control module.
13. The configuration system of claim 1, wherein the executable graphic display includes an indication of a role associated with the executable graphic display and wherein the configuration engine enables the executable graphic display to be used according to the role when associated with the one of the physical and logical process entities.

14. The configuration system of claim 1, wherein the configuration database stores one or more unassigned executable graphic displays in one section of the configuration database and stores one or more assigned executable graphic displays in another section of the configuration database.

15. The configuration system of claim 1, wherein the configuration engine produces a screen depicting the indications of the plurality of physical and logical process entities and the indication of the executable graphic display and enables a user to configure the operation of the executable graphic display dragging the indication of the executable graphic display to one of the indications of the plurality of physical and logical process entities and dropping the indication of the executable graphic display on the one of the indications of the plurality of physical and logical process entities.

16. The configuration system of claim 1, wherein the configuration engine produces a screen depicting the indications of the plurality of physical and logical process entities and the indication of the executable graphic display and produces an indication that the executable graphic display needs to be downloaded to a display device within the process plant after the executable graphic display is associated with one of the physical and logical process entities.

17. The configuration system of claim 1, wherein the configuration database stores the executable graphic display according a role defined for the executable graphic display.

18. The configuration system of claim 1, wherein the configuration database manages the visual depictions of the executable graphic display separately from the binding of the executable graphic display.

19. A method of configuring a process plant to include graphic displays for execution on one or more display devices within the process plant, the method comprising:

defining one or more executable graphic displays for use in the process plant;
storing an indication of one or more physical and logical process entities within a configuration database;

storing an indication of the one or more executable graphic displays in the configuration database; and

enabling a user to configure the operation of the executable graphic displays by associating the indications of the one or more executable graphic displays within the configuration database with the indications of the one or more physical and logical process entities within the configuration database.

20. The method of claim 19, wherein defining the one or more executable graphic displays includes defining one executable graphic display by identifying one or more visual depictions to be displayed on a display device when the one executable graphic display is executed and defining a parameter associated with the one executable graphic display, the parameter to be bound to the process plant during execution of the one executable graphic display.

21. The method of claim 19, wherein defining the one or more executable graphic displays includes defining the one or more executable graphic displays as having parameters unbound to the process plant, and wherein enabling a user to configure the operation of the executable graphic displays includes binding the parameters within the one or more executable graphic displays to one or more physical and logical process entities within the process plant.

22. The method of claim 21, including storing the indications of the executable graphic displays in a library section indicating that the executable graphic displays are not bound to data sources within the process plant and storing the indications of the physical and logical process entities in the configuration database in a manner that indicates the manner in which these physical and logical process entities are configured in the process plant.

23. The method of claim 19, wherein the indications of the physical and logical process entities include an indication of a control routine and wherein enabling the user to configure the operation of the executable graphic displays includes allowing the user to associate one of the executable graphic displays with the control routine.

24. The method of claim 19, wherein the indications of the physical and logical process entities include an indication of a plant area and wherein enabling the user to configure the operation of the executable graphic displays includes allowing the user to associate one of the executable graphic displays with the plant area.

25. The method of claim 19, wherein the indications of the physical and logical process entities include an indication of an equipment entity and wherein enabling the user to configure the operation of the executable graphic display includes allowing the user to associate one of the executable graphic displays with the equipment entity.

26. The method of claim 19, wherein the indications of the physical and logical process entities include an indication of a display device and wherein enabling the user to configure the operation of the executable graphic displays includes allowing the user to associate one of the executable graphic displays with the display device.

27. The method of claim 19, wherein the indications of the physical and logical process entities include an indication of a display device having one or more functional subsystems and wherein enabling the user to configure the operation of the executable graphic displays includes allowing the user to associate one of the executable graphic displays with one of the functional subsystems of the display device.

28. The method of claim 19, further including enabling a user to associate a role with one or more of the executable graphic displays and wherein enabling a user to configure the operation of the executable graphic displays includes using the role of one of the executable graphic displays to assign the one of the executable graphic displays within the process plant.

29. The method of claim 19, wherein storing an indication of one or more physical and logical process entities within a configuration database includes storing an indication of a first logical entity in the configuration database, and wherein enabling the user to configure the operation of the executable graphic displays includes assigning one of the executable graphic displays to a display device associated with the first logical entity when the one of the executable graphic displays is associated with the first logical entity.

30. The method of claim 29, wherein the first logical entity is a control area or a control module.

31. The method of claim 19, including storing one or more unassigned executable graphic displays in one section of the configuration database and storing one or more assigned executable graphic displays in another section of the configuration database based on the manner in which the assigned executable graphic displays are associated with the indications of the one or more physical and logical process entities within the configuration database.

32. The method of claim 19, further including producing a configuration screen depicting the indications of the plurality of physical and logical process entities and the indications of the one or more executable graphic displays and producing an indication that one of the executable graphic displays needs to be downloaded to a display device within the process plant after the one of the executable graphic displays is associated with one of the physical and logical process entities.

33. The method of claim 19, further including storing one of the executable graphic displays according a role defined for the one of the executable graphic displays.

34. The method of claim 19, further including defining each of the one or more executable graphic displays to include visual depictions to be displayed on a display device when the executable graphic display is executed and to include bindings to one or more data sources within the process plant and including managing the visual depictions of the executable graphic displays separately from the bindings of the executable graphic displays.

35. The method of claim 19, further including downloading the one or more executable graphic displays according to the manner in which the indications of the one or more executable graphic displays are associated with the indications of the one or more physical and logical process entities within the configuration database.

36. A method of using executable graphic displays within a process environment, the method comprising:

creating one or more executable graphic displays to include one or more visual depictions and one or more parameters to be bound to data sources within the process plant;

storing a role for each of the one or more executable graphic displays; and

assigning the one or more executable graphic displays to display devices according to the defined roles for the one or more executable graphic displays.

37. The method of claim 36, further including downloading the one or more executable graphic displays according to the manner in which the one or more executable graphic displays are assigned to the display devices.

38. The method of claim 36, wherein storing a role for each of the executable graphic displays includes storing an operator interface role for one of the executable graphic displays.

39. The method of claim 36, wherein storing a role for each of the executable graphic displays includes storing a maintenance interface role for one of the executable graphic displays.

40. The method of claim 36, wherein storing a role for each of the executable graphic displays includes storing a simulation interface role for one of the executable graphic displays.

41. The method of claim 36, wherein assigning the one or more executable graphic displays to display devices including assigning the one or more executable graphic displays to one or more functional subsystems of the display devices according to the roles stored for the one or more executable graphic displays.

42. The method of claim 36, wherein assigning the one or more executable graphic displays to display devices including assigning the one or more executable graphic displays to a display device according to the equipment associated with that display device.